

What is claimed is:

1. A method of detecting oligomerization of G protein coupled receptors comprising:
- a) obtaining a first G protein coupled receptor fusion protein containing a fluorescence donor;
 - b) obtaining a second G protein coupled receptor fusion protein containing a fluorescence acceptor;
 - c) transfecting a cell with the G protein coupled receptor fusion proteins of a) and b);
 - d) exciting the fluorescence donor at a particular wavelength;
 - e) detecting fluorescence emission of the acceptor (FRET), such that if this emission is greater than the emission detected in control cells expressing only the acceptor, oligomerization of the G protein coupled receptors has been detected.

2. The method of claim 1, wherein the first and the second G protein coupled receptor regions of the fusion protein are the same.

3. The method of claim 1, wherein the first and the second G protein coupled receptor regions of the fusion protein are different.

4. The method of claim 1, wherein the fluorescence donor is cyan fluorescent protein and the fluorescence acceptor is yellow fluorescent protein.

5. The method of claim 1, wherein the G protein coupled receptor region of the fusion protein is a truncated G protein coupled receptor.

6. A method of determining whether a receptor agonist activates G protein

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coupled receptors by enhancing oligomerization or activates G protein coupled receptors by disrupting oligomerization comprising:

- a) obtaining a first G protein coupled receptor fusion protein containing a fluorescence donor;
- b) obtaining a second G protein coupled receptor fusion protein containing a fluorescence acceptor;
- c) transfecting a cell with the G protein coupled receptor fusion proteins of a) and b);
- d) contacting the cell with an agonist;
- e) exciting the fluorescence donor at a particular wavelength;
- f) detecting fluorescence resonance energy transfer (FRET), such that if the efficiency of FRET detected is greater in the cells contacted with the agonist than the efficiency of FRET detected in cells prior to the addition of the agonist, receptor activation has occurred by enhancing oligomerization and if the efficiency of FRET detected is less in the cells contacted with the agonist than the efficiency of FRET detected in cells prior to the addition of the agonist, receptor activation has occurred by disrupting oligomerization.

7. The method of claim 6, wherein the first and the second G protein coupled receptor regions of the fusion protein are the same.

8. The method of claim 6, wherein the first and the second G protein coupled receptor regions of the fusion protein are different.

9. The method of claim 6, wherein the fluorescence donor is cyan fluorescent protein and the fluorescence acceptor is yellow fluorescent protein.

10. The method of claim 6, wherein the G protein coupled receptor region of the

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fusion protein is a truncated G protein coupled receptor.

11. A method of screening for an agonist of the interaction between G protein coupled receptors comprising:

- a) obtaining a first G protein coupled receptor fusion protein containing a fluorescence donor;
- b) obtaining a second G protein coupled receptor fusion protein containing a fluorescence acceptor;
- c) transfecting a cell with the G protein coupled receptor fusion proteins of a) and b);
- d) contacting the cell with a test compound;
- e) exciting the fluorescence donor at a particular wavelength;
- f) detecting fluorescence resonance energy transfer (FRET), such that if the efficiency of FRET detected is greater in cells contacted with the compound than the efficiency of FRET detected in cells prior to the addition of the test compound, the test compound is an agonist of the interaction between G protein coupled receptors.

12. The method of claim 11, wherein the first and the second G protein coupled receptor regions of the fusion protein are the same.

13. The method of claim 11, wherein the first and the second G protein coupled receptor regions of the fusion protein are different.

14. The method of claim 11, wherein the fluorescence donor is cyan fluorescent protein and the fluorescence acceptor is yellow fluorescent protein.

15. The method of claim 11, wherein the G protein coupled receptor region of the fusion protein is a truncated G protein coupled receptor.

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16. A method of screening for an antagonist of the interaction between G protein coupled receptors comprising:

- a) obtaining a first G protein coupled receptor fusion protein containing a fluorescence donor;
- b) obtaining a second G protein coupled receptor fusion protein containing a fluorescence acceptor;
- c) transfecting a cell with the G protein coupled receptor fusion proteins of a) and b);
- d) contacting the cell with a test compound;
- e) exciting the fluorescence donor at a particular wavelength;
- f) detecting fluorescence resonance energy transfer (FRET), such that if the efficiency of FRET detected is less than the efficiency of FRET detected in cells prior to the addition of the test compound, the test compound is an antagonist of the interaction between G protein coupled receptors.

17. The method of claim 16, wherein the first and the second G protein coupled receptor regions of the fusion protein are the same.

18. The method of claim 16, wherein the first and the second G protein coupled receptor regions of the fusion protein are different.

19. The method of claim 16, wherein the fluorescence donor is cyan fluorescent protein and the fluorescence acceptor is yellow fluorescent protein.

20. The method of claim 16, wherein the G protein coupled receptor region of the fusion protein is a truncated G protein coupled receptor.

21. A G protein coupled receptor fusion protein, comprising a fluorescence donor.

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22. The G protein coupled receptor of claim 21, wherein the fusion protein does not contain the C-terminal regulatory domain.

23. The G protein coupled receptor of claim 21, wherein the fluorescence donor is cyan fluorescent protein.

24. The G protein coupled receptor of claim 21, wherein the fluorescence donor is yellow fluorescent protein.

25. The G protein coupled receptor of claim 22, wherein the fluorescence donor is cyan fluorescent protein.

26. The G protein coupled receptor of claim 22, wherein the fluorescence donor is yellow fluorescent protein.

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